ISSN 1346-7565 Acta Phytotax. Geobot. 65 (3): 157–159 (2014)

Polygonatum dolichocarpum (Asparagaceae), a New Species from Yunnan, China

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Based on plants from Gaoligong Shan, Yunnan, China, we provide the first description of *Polygonatum dolichocarpum*, sp. nov. (Asparagaceae). In all previously described species of *Polygonatum* the young fruits are more or less globose and contain fewer than 9 ovules/seeds per locule and the pericladium is short or absent. *Polygonatum dolichocarpum* has elongate young fruits with 9 to 12 ovules/seeds per locule and long pericladia.

Key words: Asparagaceae, China, Gaoligong Shan, new species, number of ovules, pericladium, *Polygonatum*, *Polygonatum dolichocarpum*, young fruit, Yunnan

Polygonatum Miller (Asparagales-Asparagaceae) comprises ca. 57 species (Conran & Tamura 1998). Many of the species are hemicryptophytic in deciduous or evergreen forests, grasslands and sand dunes and widely distributed in boreal to temperate zones in the Northern Hemisphere. Some species in subtropical to temperate zones from southeastern China to Thailand and the Himalaya are epiphytic. Twelve species have been reported from Yunnan, China (Chen & Tamura 2000), and 5 of the 12 species are in the Gaoligong Shan region (Li 2000).

During an expedition to Gaoligong Shan in July, 2014, we found plants of *Polygonatum* in which the young fruits and pericladium were extremely elongate (Fig. 1A, C) and the number of ovules/seeds per locule, 9-12, was unusually high, although 2 ovules may abort when there are 12 (Fig. 1D). The plants were epiphytic in mossy (*Homaliodendron*) forests at ca. 2700 m elevation.

All previously described species of *Polygonatum*, except some species of sect. *Verticillata* sensu Tamura (Tamura 1993), such as *P. cathcartii* and *P. oppositifolium*, which have more or less elongate ovaries, have more or less globose ovaries/fruits and a short or absent pericladium, irrespective of the stage of maturity of the fruits. Even in *P. cathcartii* and *P. oppositifolium*, however, the young fruits are not unusually long. Furthermore, all previously known species of *Polygonatum* have (2-)4-6(-8) ovules per locule (Conran & Tamura 1998, Chen & Tamura 2000), and no known species of *Polygonatum* has more than 8 ovules per locule. We therefore consider the plants from Gaoligong Shan to represent an undescribed species, which we here name, describe and illustrate.

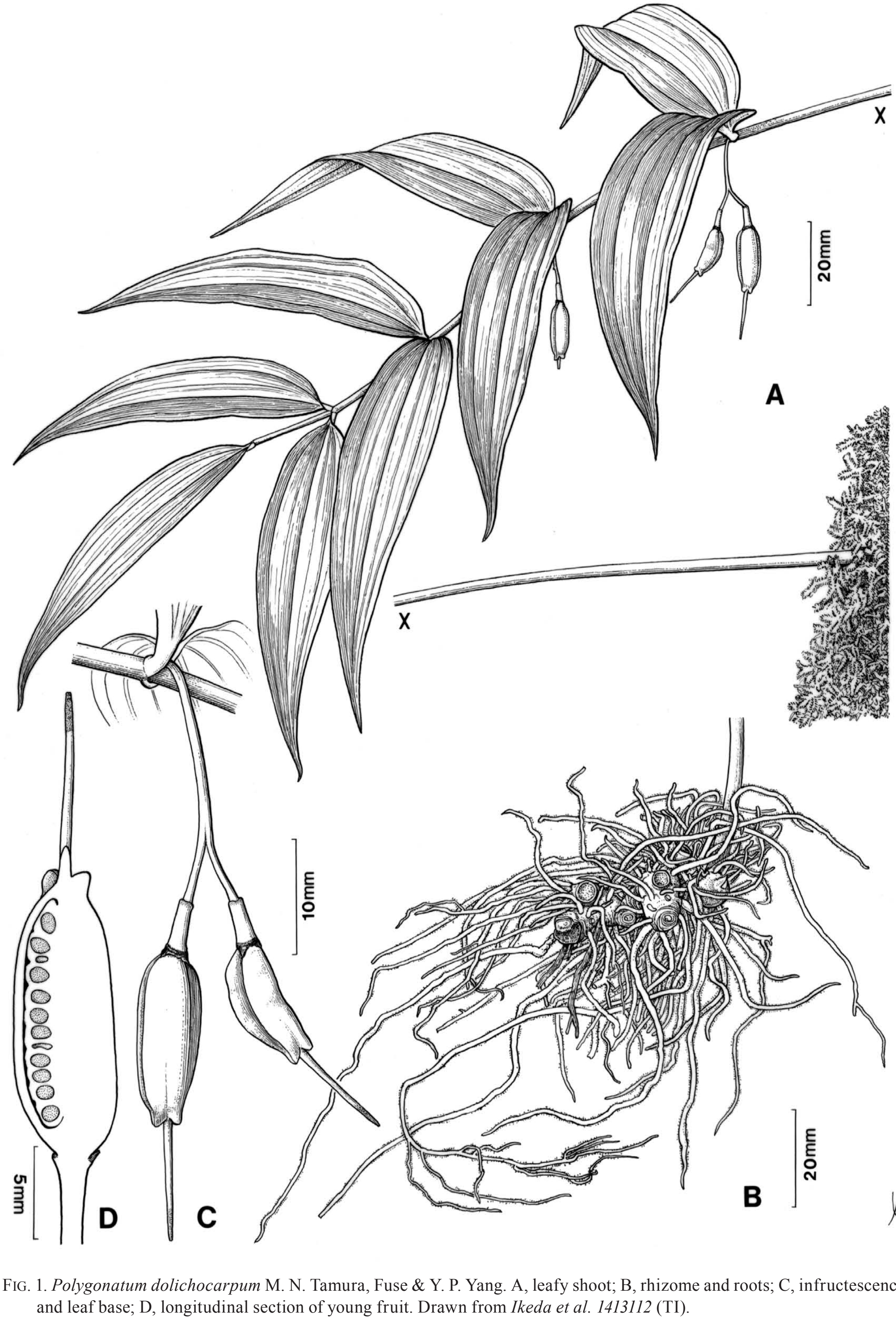

FIG. 1. *Polygonatum dolichocarpum* M. N. Tamura, Fuse & Y. P. Yang. A, leafy shoot; B, rhizome and roots; C, infructescence and leaf base; D, longitudinal section of young fruit. Drawn from *Ikeda et al. 1413112* (TI).

Polygonatum dolichocarpum M. N. Tamura, Fuse & Y. P. Yang, **sp. nov.** – Fig. 1

Similar to *P. cathcartii* in having opposite leaves and epiphytic habit, but differing in having elongate young fruits, 9 to 12 ovules/seeds per locule and a long pericladium.

Typus. CHINA, Yunnan Province: Shibali, east slope of Gaoligong Shan, Lumadeng Xiang, Fugong-xian, 30 July 2014, *H. Ikeda*, *M. N. Tamura*, *S. Fuse*, *O. Yano*, *A. Kakezawa*, *M. Qian*, *Z. Chu & Z. Chai 1413112* (holo-TI; iso-KUN).

Herbs, perennial. Rhizome creeping, cream, moniliform, zigzag, to 1.3 cm in diam., dorsally greenish, annual elongation to 1 cm, often producing 2 aerial stems annually. Roots to 1.5 mm in diam. Aerial stem 34 cm long, terete, lower part pale red, upper part pale green. Foliage leaves 9, opposite, lanceolate, 8.6-9.7 cm long, 1.5-2.8 cm broad, apex acuminate-attenuate, adaxial surface green, abaxial surface pale green, glabrous, nerves 3-7; petiole 2-4 mm long. Infructescence 1- or 2-fruited, peduncle 0.9-1.8 cm long, pedicel 8.3-11.6 mm long, pericladium 3.7-5.0 mm long. Largest young fruit 15.4 mm long, 6 mm in diam. Locules 3, 14.1 mm long; young seeds per locule 9 (none abortive), 10 (non abortive) or 12 (incl. 2 abortive). Style 10.7 mm long, 0.4 mm in diam.

Distribution and habitat. Known only from the type locality; epiphytic in the mossy (*Homaliodendron*) forests at ca. 2700 m alt., semi-shaded, mesic.

We express our sincere thanks to Ms. Min Qian (Kunming Institute of Botany, Chinese Academy of Sciences) and her colleagues for their help in the fieldwork. We are grateful to Mr. Masayoshi Umebayashi for his drawings. This study was supported in part by a Grant-in-Aid for Scientific Research (23255005) from the Ministry of Education, Science and Culture, Japan, in part by a grant (31270273) from Natural Sciences Foundation of China (NSFC), and in part by Chinese Academy of Sciences Fellowships for Young International Scientists to Hiroshi Ikeda.

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Received August 22, 2014; accepted October 2, 2014